In the claims:

1. (**original**) A process for recovering at least one metal oxide from a titaniferrous or aluminaferrous mixture comprising: (A) smelting the mixture in the presence of a reducing agent to produce a molten slag; (B) adding to the molten slag an alkali; (C) isolating molten iron from the molten slag to produce a residual slag; and (D) recovering the metal oxide from the residual slag.

2. (**currently amended**) [[A process as claimed in]] The process of claim 1 wherein the titaniferrous mixture is ilmenite, rutile or perovskite.

3. (**currently amended**) [[A process as claimed in]] The process of claim 1 wherein the aluminaferrous mixture is an aluminium mineral or ore or red mud.

4. (**currently amended**) [[A process as claimed in]] The process of claim 3 wherein the aluminaferrous mixture is bauxite or red mud.

5. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein the metal oxide is one or more of alumina, TiO2, Fe2O3 and SiO2.

6. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 further comprising: recovering one or more metal hydroxides.

7. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein the at least one metal oxide is at least two metal oxides being TiO2 and Al2O3.

8. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein in step (A) substantially the whole of the iron present in the titaniferrous or aluminaferrous mixture is reduced to molten metallic iron in the molten slag.

9. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 8 wherein the metallic iron is steel.

10. (**currently amended**) [[A process as claimed in]] The process of claim 9 wherein the reducing agent comprises or is molten cast iron and step (A) is carried out in a molten cast iron bath.

11. (**currently amended**) [[A process as claimed in]] The process of claim 9 [[or 10]] wherein the metallic iron is 0.8 to 1.0% C steel.

12. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein the reducing agent comprises: a source of carbon.

13. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein step (A) comprises smelting the mixture in the presence of a reducing agent and lime.

14. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein the alkali is a carbonate.

15. (**currently amended**) [[A process as claimed in]] The process of claim 14 wherein the carbonate is a carbonate of a group Ia or IIa metal or a mixture thereof.

16. (**currently amended**) [[A process as claimed in]] The process of claim 14 [[or 15]] wherein the carbonate is selected from the group consisting of sodium carbonate and potassium carbonate.

17. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein the titaniferrous mixture is ilmenite and step (A) comprises smelting the mixture in the presence of up to 50% by stoichiometric proportion of an alkali/alumina mixture or sodium aluminate.

18. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein in step (C), the molten iron and residual slag are tapped separately.

19. (**currently amended**) [[A process as claimed in]] The process of claim 18 wherein during tapping of residual slag, alkali is added by dosing.

20. (**currently amended**) [[A process as claimed in any preceding claim]] The process of claim 1 wherein step (D) comprises: (Dl) adding to the residual slag an aqueous solution; (D2) separating a metallate solution from a metallate residue; and (D3) isolating the metal oxide from the metallate solution and/or from the metallate residue.

21. (**currently amended**) [[A process as claimed in]] The process of claim 20 wherein step (D3) comprises: (D3a) precipitating metal hydroxide from the metallate solution.

22. (**currently amended**) [[A process as claimed in]] The process of claim 21 wherein step (D3a) includes: bubbling CO2 gas through [[(]] or passing oxalic acid into [[)]] the metallate solution.

23. (**currently amended**) [[A process as claimed in]] The process of claim 22 wherein the CO2 gas is generated during step (A).

24. (**currently amended**) [[A process as claimed in]] The process of claim 20 wherein step (D3) comprises: (D3b) acid leaching the metallate residue to produce an acid leachate; (D3c) selectively precipitating from the acid leachate a hydrated salt of the metal oxide; and (D3d) converting the hydrated salt into the metal oxide.

25. (**currently amended**) [[A process as claimed in]] The process of claim 24 wherein step (D3b) comprises: (D3bl) acidifying the metallate residue to produce a slurry; (D3b2) hydrolysing the slurry; and (D3b3) separating the metallate solution from an insoluble residue.

26. (**original**) A method for recovering titanium dioxide from a titanium oxide-containing composition comprising: (a) roasting the composition in the presence of an alkali metal carbonate and an alumina-containing material to produce a roasted mass; and (b) recovering titanium oxide from the roasted mass.

27. (**currently amended**) [[A method as claimed in]] The method of claim 26 wherein the titanium oxide-containing composition is ilmenite, rutile or perovskite.

28. (**currently amended**) [[A method as claimed in]] The method of claim 26 [[or 27]] wherein the alkali metal carbonate is sodium and/or potassium carbonate.

29. (**currently amended**) [[A method as claimed in any of claims]] The method of claim 26 [[to 28]] wherein the alumina-containing material is alumina or NaAlO2.

30. (**currently amended**) [[A method as claimed in any]] The method of claim [[claims]] 26 [[to 29]] wherein step (b) comprises: (bl) adding to the roasted mass an aqueous medium to produce an aqueous solution and an insoluble residue.

31. **(currently amended)** [[A method as claimed]] The method of claim 30 further comprising: (b2) acid leaching the insoluble residue to produce an acid leachate; and (b3) recovering titanium oxide from the acid leachate.

32. **(currently amended)** [[A method as claimed in either of claims 30 or 31]] The method of claim 26 further comprising: (c) recovering alumina-containing material from the aqueous solution.

33. **(currently amended)** [[A method as claimed in any of claims 26 to]] The method of claim 32 further comprising (d) recovering carbon dioxide generated in step (a); and (e) converting the carbon dioxide into an alkali metal carbonate.

34. **(currently amended)** A process for the extraction of metal oxides, which comprises the steps of: [[;]] (i) Reduction of a mineral ore (illmenite/bauxite/clay) and alumina-containing residues in the molten cast iron bath followed by treatment with an alkali and/or alkali mixture; (ii) Extracting the desired metal salt in the slag produced in step (i) using an aqueous and/or a dilute ammoniacal solution in aqueous media to separate water-soluble alkali aluminate from undigested metal oxide filter residue; (iii) Precipitation of aluminium hydroxide from alkali aluminate solution by bubbling CO2 gas or oxalic acid medium for maintaining a constant pH; [[,]] (iv) Calcining aluminium hydroxide formed in step (iii); [[.]] (v) Acidifying the metal oxide filter residue salt to produce a hydrated salt; and (vi) converting the hydrated salt into an appropriate oxide.